

## **AMENDMENTS TO THE CLAIMS**

### **Claims 1-23 (Canceled)**

**Claim 24 (New)** A thermal barrier coating arrangement comprising:  
a base material of a heat resistant alloy; and  
a ceramics layer formed on said base material for enhancing heat resistance of said base material;  
wherein said ceramics layer comprises  $\text{ZrO}_2$  provided with  $\text{Yb}_2\text{O}_3$  as a stabilizer;  
wherein said ceramics layer has cracks introduced into said ceramics layer that extend in a thickness direction of said ceramics layer; and  
wherein said cracks are introduced into said ceramics layer such that they extend in a range of  $\pm 40^\circ$  relative to a normal line to a face of said ceramics layer and not outside the range.

**Claim 25 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein said stabilizer further includes  $\text{Er}_2\text{O}_3$ .

**Claim 26 (New)** A thermal barrier coating arrangement as claimed in Claim 25, wherein a  $\text{Yb}_2\text{O}_3$  addition quantity in said ceramics layer is 0.1 weight % or more and 25 weight % or less, an  $\text{Er}_2\text{O}_3$  addition quantity in said ceramics layer is 0.1 weight % or more and 25 weight % or less, and a total of said  $\text{Yb}_2\text{O}_3$  addition quantity and said  $\text{Er}_2\text{O}_3$  addition quantity is 10 weight % or more and 30 weight % or less.

**Claim 27 (New)** A thermal barrier coating arrangement as claimed in Claim 25, wherein said ceramics layer has fine pores formed therein and a porosity of said pores relative to said ceramics layer is 8% or more and 15% or less.

**Claim 28 (New)** A thermal barrier coating arrangement as claimed in Claim 25, wherein an interval between adjacent said cracks is 0.05 to 1 times the thickness of said ceramics layer.

**Claim 29 (New)** A thermal barrier coating arrangement as claimed in Claim 25, wherein said ceramics layer in which said cracks are introduced has a corrosive component penetration preventing layer that is made of the same material as said ceramics layer and is formed on said ceramics layer.

**Claim 30 (New)** A thermal barrier coating arrangement as claimed in Claim 29, wherein said corrosive component penetration preventing layer has a thickness of 5 to 50  $\mu\text{m}$  and a porosity of 4 to 20%.

**Claim 31 (New)** A thermal barrier coating arrangement as claimed in Claim 25, wherein a metallic bond layer is provided between said base material and said ceramics layer.

**Claim 32 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein a  $\text{Yb}_2\text{O}_3$  addition quantity in said ceramics layer is 8 weight % or more and 27 weight % or less.

**Claim 33 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein said ceramics layer has fine pores formed therein and a porosity of said pores relative to said ceramics layer is 8% or more and 15% or less.

**Claim 34 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein an interval between adjacent said cracks is 0.05 to 1 times the thickness of said ceramics layer.

**Claim 35 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein said ceramics layer in which said cracks are introduced has a corrosive component penetration preventing layer that is made of the same material as said ceramics layer and is formed on said ceramics layer.

**Claim 36 (New)** A thermal barrier coating arrangement as claimed in Claim 35, wherein said corrosive component penetration preventing layer has a thickness of 5 to 50  $\mu\text{m}$  and a porosity of 4 to 20%.

**Claim 37 (New)** A thermal barrier coating arrangement as claimed in Claim 24, wherein a metallic bond layer is provided between said base material and said ceramics layer.

**Claim 38 (New)** A turbine part comprising a thermal barrier coating as claimed in Claim 24.

**Claim 39 (New)** A gas turbine comprising a turbine part as claimed in Claim 38.

**Claim 40 (New)** A manufacturing method of a thermal barrier coating comprising:  
manufacturing a thermal spraying powder by mixing together a  $\text{Yb}_2\text{O}_3$  powder and a  $\text{ZrO}_2$  powder;  
forming a ceramics layer on a base material of a heat resistant alloy by a thermal spraying process using the thermal spraying powder; and  
introducing cracks into said ceramics layer when said thermal spraying process is carried out using the thermal spraying powder.

**Claim 41 (New)** A manufacturing method of a thermal barrier coating as claimed in Claim 40, wherein the thermal spraying powder is further mixed with an  $\text{Er}_2\text{O}_3$  powder in addition to the  $\text{Yb}_2\text{O}_3$  powder and  $\text{ZrO}_2$  powder.

**Claim 42 (New)** A thermal barrier coating arrangement comprising:  
a base material of a heat resistant alloy; and  
a ceramics layer formed on said base material for enhancing heat resistance of said base material;  
wherein said ceramics layer comprises  $\text{ZrO}_2$  provided with  $\text{Yb}_2\text{O}_3$  as a stabilizer;  
and

wherein forming said ceramics layer comprises intentionally introducing cracks into said ceramics layer that extend in a thickness direction of said ceramics layer in a range of  $\pm 40^\circ$  relative to a normal line to a face of said ceramics layer and not intentionally introducing cracks outside of said range.